



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN F. KENNEDY SPACE CENTER
KENNEDY SPACE CENTER, FLORIDA 32899

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REPLY TO
ATTN OF: AA-RQA

MAR 2 1972

MEMORANDUM

TO: Distribution

FROM: AA/Manager, Apollo-Skylab Programs

SUBJECT: Skylab Program Directive #50A, "Identification of Nonflight Hardware"

The attached SLPD #50A is provided for your information. A copy of the briefing note to the Center Director is attached to provide you with a summary of the changes to the basic directive and the general impact on the Center.

A revision of KPD 8610.1 reflecting the requirements of the revised directive will be coordinated with appropriate Center elements.

Robert C. Hock
Robert C. Hock

2 Enclosures
SLPD 50A
Briefing Note

Distribution:
Apollo-Skylab Dist. M

BRIEFING NOTE TO DR. DEBUS

FEB 2 1972

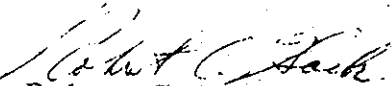
SUBJECT: Skylab Program Directive #50A, "Identification of Nonflight Hardware"

The "A" revision to the subject directive dated December 21, 1971, has been received by this office. Changes and additions to the basic document to improve its implementation include:

- a. Extension of the directive's scope to include hardware, including spare components, shipped separately to KSC.
- b. Extension of the directive's requirements section to include the identification of installed nonflight explosive devices with red streamers.
- c. A change in the physical marking requirements from coloring each article bright red or orange to either coloring bright red (or orange) or by red (or orange) striping. Also, with coloring of the hardware is not practical, the use of decals with contrasting stripes is acceptable.
- d. The requirement to both color and tag installed nonflight hardware. The basic document required coloring of the hardware when practical and when not practical required the use of red streamers.
- e. A provision for the installation and removal of GSE items made up of numerous small pieces such as work platform assemblies by inventory control procedures rather than by the use of streamers.

The major impact from the revision is to the Centers supplying Skylab peculiar flight hardware to KSC. The existing Apollo nonflight marking system remains unchanged; therefore there is no impact to Launch Vehicle Operations. A revision to KPD 8610.1, "Control of Nonflight Hardware," is necessary to reflect the above changes affecting Spacecraft Operations (i.e., b, c, d and e) with appropriate revisions where necessary to the LS Preflight Operations Procedures.

This SLPD No. 50A will be given standard distribution to heads of primary and secondary organizations along with a copy of the briefing note.


Robert C. Hock

BRIEFING NOTE TO DR. DEBUS

FEB 2 1972

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Robert C. Hock

DEC 21 1971

SKYLAB
PROGRAM DIRECTIVE NO. 50A

TO : DISTRIBUTION

FROM: *John H. Disher*
DIRECTOR, SKYLAB PROGRAM

SUBJECT: IDENTIFICATION OF NONFLIGHT HARDWARE

I. PURPOSE

The purpose of this directive is to establish uniform requirements for identification, marking and control of nonflight hardware.

II. SCOPE

This directive is applicable to all nonflight hardware temporarily installed in a module of the Skylab Space Vehicle and to hardware (including spare components) shipped separately to KSC.

III. EFFECTIVITY

The requirements for use of streamers and controls contained in this directive shall be implemented on all Skylab Space Vehicles except that the Launch Vehicle Stages will continue to use that system of control which is currently in effect on the Apollo Program at KSC.

The requirements for coloring hardware itself shall be phased into existing procedures on a basis of non-interference to hardware already identified and marked.

All new contracts, or contracts and procurements in process and not yet producing hardware, shall reflect the total requirements of this directive.

IV. RESPONSIBILITIES

All NASA Skylab Program Offices or their delegated representatives shall be responsible for implementation of the requirements established by this directive. It shall be the responsibility of these offices to assess current practices for compliance with this directive and, where indicated, take necessary action to change existing practices to effect compliance. Deviations to this directive will require Skylab Program Office approval.

V. DEFINITION

Nonflight Hardware - Hardware which is similar to flight hardware in design, fabrication, function, and/or physical appearance, and other hardware used to support test and checkout activities which could be accidentally substituted for flight articles. This includes test hardware used as a temporary installation in flight hardware, hardware which has been downgraded from flight status to ground checkout status (such as ground test batteries), and protective devices (such as dust covers, caps and tape).

VI. REQUIREMENTS

1. A system shall be established to identify, mark and control nonflight hardware to preclude inadvertent or unauthorized usage as flight hardware. Specified coloring and controls shall be in place at the time of shipment to KSC of stages or major modules of the Skylab space vehicle. The system shall consist, as a minimum, of the following:

a. Identify all such items by either coloring bright red (or orange) or by red (or orange) stripping. When the preferred identification (by coloring) is not practical, decals with contrasting stripes are acceptable. Preferred color is number 28913 in Federal Standard No. 595a. Decals should be similar to those defined in MSC Document CD42-A-965.

b. In addition, a red or orange serialized streamer shall be attached to or in the immediate vicinity of an item of installed nonflight hardware. The streamer shall be of a size and material compatible with the environment under which it will be used. Streamers are to be traceable to the prescribed system (stage or major module) which identifies and controls the item.

c. Record (by logging) and control the usage and removal of such items. This shall include an inventory of all streamers prior to flight to assure that streamers, as well as nonflight hardware, are removed.

d. A record of nonflight hardware installed shall accompany each stage or major module transferred from one location to another.

e. The requirements of paragraph VI.1.a. shall not apply to nonflight explosive devices (live, inert/expended). Explosive devices shall be marked to indicate hazard identification as required in NASA safety directives. Installed nonflight explosive devices will also be identified by the use of streamers and records as described in paragraphs VI.1.b and c.

Failed or nonconforming and MRB hardware shall be treated and controlled in accordance with existing systems. However, when such items are installed as nonflight hardware, they shall be treated per the above requirement.

NOTE: Hardware scheduled for flight, but not yet flight qualified, must be tracked by the responsible Development Center and must be either fully qualified or have flight approval granted at the FRR prior to flight. These items are considered flight hardware for the purposes of this directive.

2. Nonflight hardware (including spare components) shipped separately to KSC shall be identified in accordance with VI.1.a. above. Transfer documentation shall reflect nonflight hardware status.

3. GSE items which are made up of numerous small pieces such as work platform assemblies installed in a flight vehicle shall be installed and removed by inventory control procedures and do not require streamers. The inventory control shall account for detail parts required for each installation and shall require part number and serial number down to the lowest subassembly installed.

VII. INSPECTION AND VERIFICATION

The normal quality control system, including surveillance and auditing, shall verify compliance with this directive. Implementation of these requirements shall be described in appropriate Quality Program Plans.

DEC 21 1971

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